

NOTES ON CICADAS WITH DESCRIPTIONS OF NEW SPECIES¹

BY WILLIAM T. DAVIS

STATEN ISLAND, N. Y.

In the summer of 1941, Mr. and Mrs. J. N. Knull from the Department of Entomology, Ohio State University at Columbus went insect collecting and as usual found a considerable number of cicadas. In 1940 they collected some cicadas in Texas, and a few in Arizona and California, but in 1941 they again visited Southern California where there are probably more species of cicadas than in any other area of equal size in the United States. In an area about the size of the State of New York which contains eleven named forms they collected 187 specimens, of 29 species, some of them coming from nearby parts of Arizona. In Southern California, probably forty or more species can be found. Some of these appear to have but a very small area of distribution, as for instance the beautiful green and black *Okanagana nigriviridis* of which five were collected. Three *Okanagana opacipennis* were found, and it is the only species in the United States known to the writer in which the fore wings are wholly opaque. It and *Okanagana rubrovenosa* occur on the Manzanita bushes, where their red color blends well with the reddish bark. Four *Cacama californica* were taken, a welcome record, as but few have been examined.

These diligent collectors also found, as others have observed, that the small *Okanagana pallidula* after emerging from its pupa skin, which may remain in the burrow, will often also stay there for a time. It is certainly unique to hear a cicada singing from its burrow as do some species of crickets.

In 1892 Prof. P. R. Uhler named *Clidophelps blaisdelli*, and complained when describing the species, that: "specimens have

¹ I am indebted to Howard Cleaves and Mrs. Cleaves for drawing text figures and taking photographs and to Edward E. Hannigan for photographing two of the specimens.

thus far proved scarce." In 1926 the writer named *Clidophelps wrighti*, based on seven specimens. A few others have since been examined. It was a pleasant surprise therefore to find that Mr. and Mrs. Knull had collected no less than sixty *wrighti* at Jacumba and Oak Grove in San Diego County and at Cajon Pass in San Bernardino County. They also collected fourteen *blaisdelli* at Jacumba and Oak Grove. These two species live together, and it was of interest to find that this long series could be so readily separated by the structural and color differences mentioned in the original descriptions. Other species of *Clidophelps* were also collected, such as *vagans* and *tenuis*.

Tibicen curvispinosa and Tibicen nigroalbata

At the time of describing these remarkable insects in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, June, 1936, males only of *curvispinosa* from Mexico, and a female of *nigroalbata* collected by Prof. E. D. Ball in Santa Cruz County, Arizona, August 15, 1935, were available.

In 1940, Mr. Albert E. Maas sent three females and seven males of *curvispinosa* taken at Compostela, Nayarit, Mexico, in June and early July of that year.

On July 12-13, 1940, the field expedition from the University of Kansas was at Ruby, Santa Cruz County, Arizona and was fortunate in collecting four males and a female of the much desired *Tibicen nigroalbata*. At the suggestion of Dr. Raymond H. Beamer, that one of the four males be designated as allotype, I have selected the one collected at Ruby, Santa Cruz County, Arizona, July 12, 1940 (R. H. Beamer), and now in the collection of the University of Kansas. In sending the specimens for inspection, Dr. Beamer wrote: "They were about as difficult to take as any Cicada I can remember. We had heard them, one here and there, for several days before we finally captured a pair. Then we took the other three the next morning as we were leaving. They were not numerous, and the region was rough and the going hard. It took the whole party to get the three specimens, about that many hours."

The five specimens of *nigroalbata* mentioned above are from about the same part of Santa Cruz County where the type was

collected by Dr. Ball in 1935, and like it they all have the tergum shining black. The twenty specimens of *curvispinosa* so far examined from Mexico, collected about seven or eight hundred miles further south, are much paler in color and have the abdominal segments greenish brown, or with only about the basal half of each segment black in color. Also they have that portion of segment two at the base of the abdomen and the broad tympanal plates or covers, brown in color, except for the pruinose spot, whereas in *nigroalbata* the covers are black except for the pruinose spot. The males of *nigroalbata* have, as in *curvispinosa*, a long, slim upturned spine protruding backward from segment IX, as illustrated in the 1936 description, and it is possible that it is a northern race of the paler colored *curvispinosa*. Specimens from northern Mexico are desirable, as well as observations on the habits and songs of the two insects.

It may be of interest to refer to some of the specimens of *Tibicen curvispinosa* in the U. S. National Museum, and the opinions held concerning them by several entomologists. In: "Studies in Certain Cicada Species," Entomological News, April, 1907, p. 128, Prof. John B. Smith and John A. Grossbeck, refer to this species as follows: "Plate III, figures 7 and 8, illustrate the genitalia of a Mexican species of Cicada, which we have not attempted to identify and present merely to show the variation of the structure in the genus. The specimens were sent from the U. S. N. M., with the *tibicen*, and were labeled *C. opercularis* Oliv., which of course they are not. It probably represents a new species."

In 1938 four males of *curvispinosa* were sent to the writer for examination and among them the specimen mentioned above labeled: *C. opercularis* Olivier, and collected at Guanajuato, south central Mexico by A. Duges. Another male bears no specific name, but was collected by A. Duges at the same locality. A third male, also from Guanajuato, is labeled "*Cicada rudis*" on one label and on another label, "*Rihana (Cicada) rudis* Walker O. H. A fourth male came from Guadalajara, Jalisco State, Mexico, July 1885. Some of these specimens once formed a part of the P. R. Uhler collection.

As *Tibicen curvispinosa* in appearance very closely resembles

T. rudis Walker, as will be noted by consulting Distant's colored figure of *rudis* in "Biologica Centrali-Americana, Rhynchota-Homoptera," it is not surprising that Mr. Otto Heidemann of the U. S. National Museum, identified one of the males from Guanajuato as *rudis*. He was unfamiliar with the great differences in the genitalia between the two species, and also of the presence of the two remarkable spines at the end of the abdomen in what is now known as *curvispinosa*.

Tibicen longiopercula Davis

This species was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, for June, 1926, from a male in the collection of the U. S. National Museum, collected in the Chiricahua Mts., Cochise County, Arizona, June 10, by H. S. Hubbard. It was stated that "The long opercula, which almost completely cover the underside of the abdomen are conspicuously reddish and shining, especially near the extremities."

Lately Dr. Raymond H. Beamer of the University of Kansas sent for examination a male of this species collected by him in Sunnyside Canyon, Huachuca Mts., Arizona, July 9, 1940. A male collected by Dr. E. R. Tinkham in the Santa Rita Mts., Arizona, June 16, 1940, 6,500 ft., has also been examined. These are the only specimens known to the writer, and more are certainly desirable, for the long opercula probably vary considerably in length.

Diceroprocta apache and its varieties

Diceroprocta apache was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, for March, 1921, from Florence, Arizona. They were found on mesquite, and Dr. H. H. Knight described their song as continuous, even toned and moderately shrill. It was stated that there were "several color varieties of *apache*, the commonest one having the body mostly brown or brownish, instead of black" or nearly black, as in the typical specimens from Florence. The collar is always pale.

In this JOURNAL for September, 1930, Dr. R. H. Beamer in his: "Biological Notes on Some Western Cicadas," collected in 1929, makes the following interesting observations: "*D. apache* Davis

was common over large areas and occurred in a great variety of habitats, all of which were of low altitude. A number of males were heard singing in willow at eight P.M., June 30, at the bottom of the Grand Canyon. Only one was taken. A large brood occurred near Wickenburg, Arizona, July 2, in a habitat almost exclusively Palo Verde trees. Phoenix was noisy with their songs at half past six in the evening and again at ten in the morning. Near Yuma the party was welcomed when it arrived at half past seven P.M. (Rocky Mountain time), for all along the Colorado River and the irrigated section west of the river there were myriads of these noisy friends. Even in the Salton Sea valley, *D. apache* was busy singing at eight P.M., July 28, and again at seven the next morning. Exuvia clung to the wire netting around the government laboratory in Coachella. Nests of eggs were found in sunflower stalks nearby. Hundreds of adults were living in a citrus orchard a few miles north of town. As many as twenty were found in one tree. In a little group of mesquite trees a mile farther north, numbers were picked off the limbs with the fingers. Here large cicada killers were at work but eluded the collectors. The nests in sunflower stems were placed in a straight line, from two to sixteen in a series, so close together that one extends to the next. Nine or ten large eggs were placed in mismatched pairs down the stem from the nest opening. Seventy-four males and twenty-four females were taken."

An account of our personal observations on *apache* at Indio, California, in late June, 1931, is given in this JOURNAL, for June, 1932, p. 248, and it is stated that the majority of the specimens found were of the light brown variety, and that similar color forms had been examined from localities in Nevada and Utah. A few, however, were almost entirely black with the collar and wing veins straw-colored or even green. *Apache* is known to occur at Indio from June to October.

On June 26, 1931, Mr. George P. Engelhardt and the writer found a number of *apache* on the bushes near the railroad station at Buckie, Arizona. They were of the typical dark form, as have been the considerable number since examined from the same locality secured by other collectors.

Apache has been thus far collected in Arizona, Utah, Nevada,

California, old Mexico, and reported from Texas. It varies considerably in color according to environment, as has been stated. In southern California, near the Salton Sea, in the Coachella Valley, in the Imperial Valley, as well as about Yuma, Arizona, the pale form predominates, black bodied or nearly black bodied specimens being much less common. The pale form also occurs along the Virgin River in southwestern Utah; along the same river as it flows southward to the Colorado through Clark County, Nevada, and Mr. Richard G. Dahl has found the pale form at Needles, California, on the Colorado River.

In showing me a very long series of typical *apache* collected by Messrs. Gertsch and Hook, 15 miles south of Chandler, Maricopa County, Arizona, July 16, 1940, Mr. M. A. Cazier, of the American Museum of Natural History, was struck by the great difference in color between them and the pale forms mentioned above. As the pale variety results from a different environment, he suggested that it be given a name.

Diceroprocta apache variety **ochroleuca**, new variety (Plate XII, Fig. 3)

Type male and allotype female from Indio, California, June 21, 1931 (Wm. T. Davis). Davis collection.

There are paratypes of *ochroleuca* in the writer's collection from Yuma, Arizona, but as the Gila River is ascended toward Palo Verde, Buckie, Phoenix, Tempe, Chandler, Sacaton, Florence (the type locality) and beyond to San Carlos, typical *apache* is usually the only form present. The same appears to be the case in ascending the Colorado River, and typical *apache* are to be found at the Grand Canyon. Dr. John W. Sugden collected dark colored *apache* along Rock Creek, Kane County, Utah, July 21, 1937. This creek flows into the Colorado. The dark form was collected at Yermo, San Bernardino County, California, about 80 miles west of the Colorado on June 4-9, 1940, by Mr. Richard G. Dahl, who reported them mostly on willow, but also on cottonwood, and singing loudly all day.

Diceroprocta semicincta variety **nigricans**

The species, *D. semicincta* Davis, was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, March, 1925,

from Arizona, and again characterized in the JOURNAL for December, 1928. Several hundred specimens have been examined from Arizona, and it is now known to occur also in New Mexico and Mexico. The principal structural variation in the many specimens examined, has been in the shape of the pale straw-colored opercula, which may vary from a nearly triangular form, to having the apices drawn out and sometimes also in-curved. In a long series from some of the localities in southern Arizona both forms of opercula may be found, but there is a tendency toward the localization of the forms. Specimens thus far examined from Silver City, New Mexico, have the opercula triangular in shape and the apices not drawn out as is often the case in those from the Boboquivari Mountains to the west.

In the summer of 1941 the biological expedition of the University of Kansas visited a number of localities in Arizona, and among the many cicadas collected and kindly sent to me by Dr. Beamer, there was an almost wholly black form resembling *semicineta* but with several noticeably distinct features. Awaiting more specimens, it may at present be considered a variety of *semicineta*. It will be figured in a future article.

Diceroprocta semicineta var. **nigricans**, New Variety.

Type male, Chiricahua Mountains, southeastern Arizona, August 7, 1941 (L. H. Banker). Collection, University of Kansas.

Structurally closely related to *semicineta* to be found in the same mountains, but with a narrower head than *semicineta* specimens having an equal expanse of wings, and with the small opercula triangular in shape and barely covering the openings beneath. Body black above except the eighth abdominal segment, which has the usual pruinose spot each side. The collar is entirely black with no indication of the pale hind margin present in *semicineta*. Venations of both pairs of wings black; basal membranes dark gray and basal area nearly all black with a small nearly round pellucid area at the outer lower margin. In *semicineta* this area is clear, except for the narrow dark line along the front margin. Beneath; legs black or nearly so (they are straw-colored in *semicineta*); opercula dark, clouded at base; abdominal segments pruinose at sides, and pruinose on the under side of head, pronotum and mesonotum.

MEASUREMENTS IN MILLIMETERS

	Male Type
Length of body	24
Width of head across eyes	9
Expanse of fore wings	71
Greatest width of fore wing	11
Width of operculum at base	5
Greatest length of operculum	5

After receiving the writer's report on the cicadas collected in 1941, Dr. Beamer wrote that Mrs. Beamer had recognized the peculiarities of what is here called variety *nigricans* when the specimen was captured by Mr. Louis H. Banker, who climbed to the top of a tree to get it. "I am only sorry we did not stay in this spot longer," adds Dr. Beamer.

Diceroprocta tepicana Davis

This species was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY for September, 1938, from three specimens collected in May, 1937, near Compostela, Nayarit, Mexico. In 1938 Mr. Albert E. Maas collected eight males and two females of *tepicana* in June and early July at the type locality. The thirteen specimens in size and color closely resemble one another, and all are much larger than *Diceroprocta bakeri* Distant, and have more prominent eyes. There is, however, considerable resemblance in size and color between *tepicana* and *Ollanta mexicana* Distant. In the latter the tympanal orifices are partly exposed, whereas in *tepicana* they are completely covered. Also the inner pair of obconical marks on the pronotum are separated in *mexicana* and allied species, whereas in *tepicana* and its allies, they are contiguous at base.

A NEW CICADA OF THE *DICEROPROCTA SWALEI* GROUP

In the southwestern United States and in Mexico there are seven described species of yellowish brown cicadas, in which the veins surrounding the marginal areas of the fore wings are often infuscated. They are:

Diceroprocta swalei (Distant), 1904. Arizona

Diceroprocta swalei var. *castanea* (Davis), 1916. Arizona

Diceroprocta virgulata (Distant), 1904. Mexico

Diceroprocta bakeri (Distant), 1911. Mexico

Diceroprocta arizona (Davis), 1916. Arizona

Diceroprocta tepicana Davis, 1938. Mexico

The writer has specimens of all of these species, *virgulata* excepted, which is described as expanding: "59 millimeters and with opercula pale dull ochraceous their inner areas black." It is figured in Appendix, Biol. Centr.-Amer., 1905.

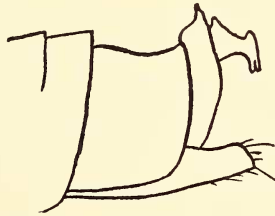
Among the cicadas collected on the Fourth Hoogstraal Mexican Biological Expedition, 1941, there are four small males belonging to this group from Apatzingan, State of Michoacan, Mexico, here described as a new species.

Diceroprocta pusilla new species (Plate XII, Fig. 4).

Type male from Apatzingan, Michoacan, Mexico. Alt. 1200 feet, August 10, 1941 (Ralph Haag). Davis collection.

Resembles *Diceroprocta bakeri* Distant, also from south central Mexico, but is smaller, is darker colored and has more prominent eyes. The opercula have the outer margins nearly parallel to each other, the inner angles almost touch; the extremities are obliquely rounded, and extend slightly beyond the base of the abdomen. When seen in profile the lower extremities of the uncus are noticeably long and claw-like when compared with allied species.

Head black, a small pale spot above each antenna, and one each side near the posterior margin. Pronotum ochraceous, a central longitudinal fascia, angularly dilated anteriorly and posteriorly; furrows black and the posterior



D. *pusilla*

margin or collar green or yellowish green. Mesonotum black, hind margin pale, the elevated X pale with a central black spot and a small black dot each side just before the anterior limbs of the X. The obconical areas extending backward from the fore margin with only the outer margins pale. Abdomen above black, the tympanal covers and the eighth segment paler, especially at the sides. Body beneath and legs almost entirely pale and pruinose, especially the opercula. Under side of the abdomen pruinose, with the segments light colored along their posterior margins. The basal membranes or

anal areas in both fore and hind wings grayish, with the veins surrounding the marginal areas ochraceous. Basal area nearly clear, and costal margin of fore wings greenish.

MEASUREMENTS IN MILLIMETERS

	Male Type
Length of body	14
Width of head across eyes	5.5
Expanse of fore wings	44
Greatest width of fore wing	6
Greatest length of operculum	4

In addition to the type two males were collected July 30, 1941, at Apatzingan on Acacia, and another male on August 10, 1941, amid semi-desert scrub.

Chinaria mexicana and an allied form

Chinaria mexicana was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY for March, 1934, the type locality being Cuernavaca, Morelos, Mexico. Since 1934 additional specimens have been received, and at present there are 9 males and 6 females in the writer's collection including the type and allotype. They are from the states of Sinaloa, Nayarit, Michoacan and Morelos, all on the west coast of Mexico excepting Morelos, which is about 150 miles inland. Adjoining and to the southwest of Morelos, and on the coast, is the State of Guerrero, where 7 specimens of what appeared at first to be *mexicana* were collected in August, 1938, by Mr. Louis J. Lipovsky. The size and rather complicated wing pattern of all of the specimens is as in *mexicana*, but the uncus shows considerable difference in form indicating a separate species or geographic race. The original illustrations of the type and the uncus of *mexicana* are here reproduced for comparison with what is here described as *Chinaria similis*.

Chinaria similis new species (Plate XIII, Fig. 2).

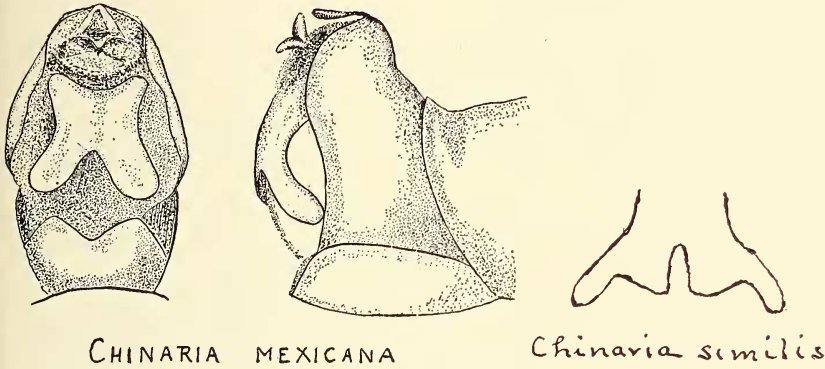
Type male and allotype female from Tierra Colorado, Guerrero, Mexico, August 15, 1938 (Louis J. Lipovsky). Davis collection.

Resembles *Chinaria mexicana* in size and in wing maculation.

Head narrower than in *mexicana*, front rounded, lateral margins of the pronotum considerably dilated and with the outer angles prominent. Rostrum extending beyond the posterior coxæ. Opercula very short and rounded, the

inner extremities far apart. Last ventral segment not quite evenly rounded at the extremity; in the allotype there is a small notch. The abdominal walls are very thin in the males, especially beneath, as they are in *mexicana*. Uncus as figured.

Color greenish, with the tergum of abdomen somewhat yellowish; wings much spotted with brown as in *mexicana*, and as illustrated. Head greenish, black about the ocelli, and four dots near the posterior margin between the eyes, the outer two being the larger. Pronotum green, including the collar, with the grooves darkened. There are two almost parallel lines centrally extending from the front margin of the pronotum backward between which is included a long and narrow irregular yellowish spot. Mesonotum with four spots extending backward from the front margin, the inner pair the



CHINARIA MEXICANA

Chinaria similis

shorter. The cruciform elevation or X, is green with a small dark spot each side near the anterior limbs. Abdomen nearly uniform yellowish green in type, but in some of the paratypes segment eight is more or less pruinose. In the female allotype the tergum is darker with the hind margin of each segment slightly lighter in color, and with an indication of spots near the lateral margins. Under side uniformly pale with the central segments somewhat translucent. Some of the paratypes have the under side pruinose along the sides of the abdomen and about the legs. Wings marked with brown and as shown on the plate. In both *mexicana* and *similis* there are pale, irregular, whitish and bluish spots, more or less regularly distributed on the fore wings. In the radial cell the central portion of the included brown ring is bluish with a whitish spot outside at each end of the ring. The eighth marginal area of the fore wing also contains a rather large wedge-shaped white spot. These pale spots may not be detected unless the insect is held in a certain position.

MEASUREMENTS IN MILLIMETERS

	Male Type	Female Allotype
Length of body	34	27
Width of head across eyes	9	9
Expanse of fore wings	86	86
Greatest width of fore wing	12	12
Greatest width of operculum	5

In addition to the type and allotype, five males and one female are in the writer's collection all collected at the same place and date. The form of the uncus in *mexicana* and *similis* shows no intergrades in the available material.

Okanagana villosa Davis

This species was described and figured in the JOURNAL, NEW YORK ENTOMOLOGICAL SOCIETY, March, 1941, from a single male type now in the University of California collection. It was collected at Cloud's Rest, 9,924 feet, Yosemite National Park, California, June 9, 1931.

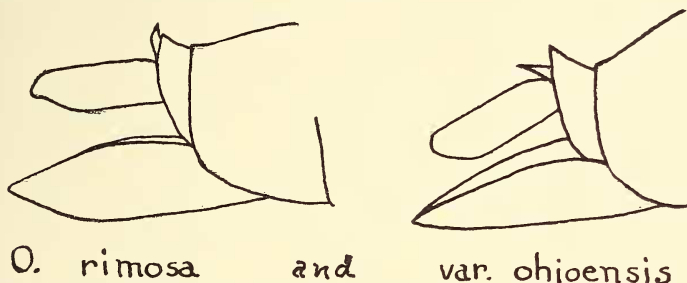
Recently two additional males of this remarkably hairy cicada have been examined, both collected near the type locality in California. One is labeled: "Tuolumne River, Sierra Nevada Mts., Calif. Elevation 8,000 ft., July 11, 1922 (Victor Duran)," and the other, from the collection of Mr. M. A. Cazier, came from Mokolumne Peak, Calaveras County, California, July 27, 1935.

Okanagana occidentalis from northern California, Oregon, Washington, British Columbia and adjacent territory is also a hairy species, and small individuals may be confused with *villosa*, but in *occidentalis* the front of the head is more obtuse when seen in profile, and the lateral margins of the pronotum are black and not margined with orange as in *villosa*.

Okanagana rimosa (Say) and **Okanagana canadensis** (Provancher)

Both of these species are remarkable on account of their wide distribution, which extends from eastern Canada and the north-eastern United States, westward to beyond the Rocky Mountains. In western North America, where there are many species of *Okanagana*, several extend northward to British Columbia, but do not come far eastward; several, however, reach Manitoba.

With this wide range, it is to be expected that *rimosa* and *canadensis* would present some variations, and from an examination of a great many specimens, it appears that a variety here considered as more closely related to *rimosa*, is to be found in Ohio, and probably in Pennsylvania and New York. More specimens are desirable. Both species sometimes occur in great numbers and have their brood years, as recorded in literature, but the length of their life cycle is not known.



Okanagana rimosa var. *ohioensis*, new variety (Plate XIII, Figs. 3 and 4).

Type male, Geauga County, Ohio, May 30, 1941 (Charles A. Dambach), and allotype female, Burton, Geauga County, Ohio, June 5, 1938 (Charles A. Dambach). Both in the collection, Ohio State Museum, Columbus, Ohio.

Larger and more robust than is usual in either *rimosa* or *canadensis*, with the abdomen in the males broad, not as tapering, and with the sides noticeably parallel. Fore wings long and narrow, with the costal margin usually bent more than in *rimosa* and *canadensis*. The uncus when viewed in profile is blunt at the extremity, but varies in some of the paratypes. It is hairy and the entire insect is more so than is usual in *rimosa* or *canadensis*. Head slightly narrower than the pronotum at the anterior angles. Median sulcus of the front well defined with the sides nearly parallel. Body of the male type when viewed from above gradually broadening from the head to the middle of the abdomen, but in some of the paratypes the sides are more parallel. Last ventral segment of the type with the extremity rounded but not notched. Uncus as figured, and as mentioned above; valve quite hairy. Last ventral abdominal segment of the allotype broadly notched at the extremity, with the inner notch rather plainly indicated. Wing venation as in *rimosa*, and not as coarse and black as is usual in *canadensis*. Basal area of the fore wings at base, as well as the anal membranes bright orange in color.

Head black above with the supra-antennal plates pale and a short longitudinal pale line in the groove extending backward from the central ocellus.

In one of the paratypes this groove is black. Pronotum nearly black including lateral margins with a large irregular rust-colored area each side of the central groove. Collar pale; mesonotum black bordered on the sides and posteriorly with orange. The tips of the obconical central areas are orange, the elevated X, is orange centrally; the fore limbs including the two depressed areas also pale. Metanotum edged posteriorly with orange. Tergum black with the segments edged posteriorly with orange as is usual in *rimosa*. Uncus black; valve pale slightly darkened near the tip. Beneath, the legs are pale orange streaked with black and considerably blackened on the inner sides of the fore femora. The abdominal segments are black margined posteriorly with orange, and with a black spot on each segment at the sides.

MEASUREMENTS IN MILLIMETERS

	Male Type	Female Allotype
Length of body	26	24
Width of head across eyes	7	7
Expanse of fore wings	73	73
Greatest width of fore wing	10	11
Length of valve	5

I am indebted to Edward S. Thomas, Curator of Natural History, Ohio State Museum in Columbus, who kindly sent me the first specimens of this variety collected in 1938 and 1941 by Mr. Charles A. Dambach, who later also sent me a male and female collected in May, 1941. Recently I received for comparison from J. N. Knull, Curator of Insects, Ohio State University, a well developed and fully colored male labeled: "Cleveland, O., June 20, 1914 (J. L. King)." It is of the same size as the type, but more contrastingly colored. Mr. Thomas considers that this insect is not uncommon among the white pines and hemlocks in the hilly country in the northeastern part of Ohio.

Platypedia tomentosa new species (Plate XIII, Fig. 5).

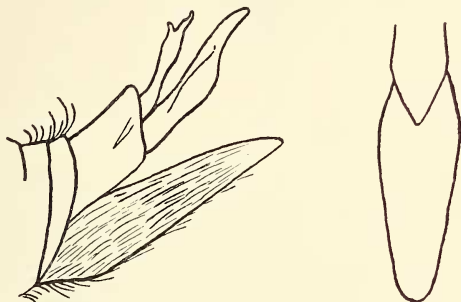
Type male, 7 mi. W. Coalinga, Fresno Co., California, March 20, 1940 (Richard G. Dahl). Davis collection.

Resembles *Platypedia scotti* in size and in having narrow fore wings, but is densely hairy and has a very differently shaped uncus. The uncus more nearly resembles that of *Platypedia balli* from Arizona, a larger and smoother species with a bluish tinge and not a brassy one. In *P. mariposa* the uncus is stouter; the insect is not tomentose and the membranes at the base of the fore wings are not as pale.

Head moderately broad with the front a little more prominent than in *scotti* and the face covered with rather long white hairs, more so than in

allied species. Uncus as figured and noticeably flattened at the extremity. Last ventral segment of the male rounded at the extremity, but obscured, as is the under side of the abdomen, by the abundant, matted, woolly hairs. Dorsal surface of the abdomen with many white hairs, especially at the base and on the sides. Basal area of the fore wings broader in proportion to its length than in most of the allied forms.

Body black with a slight brassy reflection especially on the head and pronotum. The usual pale spot above each antenna is greenish, and not orange as in allied species. Hind margin of the pronotum or collar pale



Platypedia tomentosa

green, and pale about the elevated X and in the hind margin of the mesonotum. Abdomen, uncus and valve black, both above and beneath. Fore legs with the front femora slightly chestnut colored on the sides; extremities pale, and tibiae black. The middle and hind legs have the femora black above, pale beneath and at the extremities, while the tibiae are pale centrally and darker at the extremities. Basal membranes of all of the wings almost white.

MEASUREMENTS IN MILLIMETERS

	Male Type
Length of body	20
Width of head across eyes	5
Expanse of fore wings	40
Greatest width of fore wing	7
Length of valve	4.5

In addition to the type, there is in the writer's collection a single male collected at the same place and date by Mr. Richard G. Dahl, who states that they were secured from *Juniperous californicus* by night beating, and that he heard none singing during the day time, although the temperature was about 78° F. The altitude was about 400 feet.

PLATE XII

- Figure 1. *Tibicen nigroalbata*. Male.
Figure 2. *Tibicen curvispinosa*. Female.
Figure 3. *Diceroprocta apache* var. *ochroleuca*. Type.
Figure 4. *Diceroprocta pusilla*. Type.

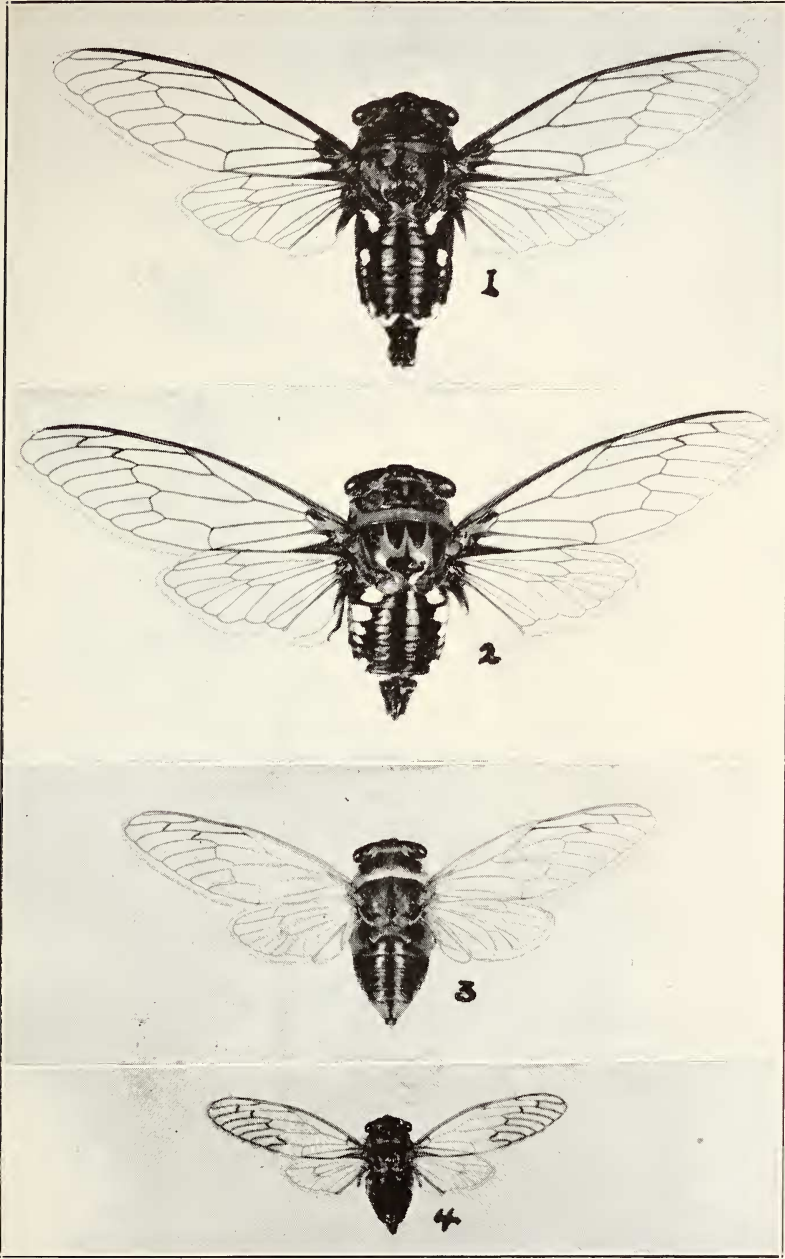


PLATE XIII

- Figure 1. *Chinaria mexicana*. Type (reproduced).
Figure 2. *Chinaria similis*. Type.
Figure 3. *Okanagana rimosa* var. *ohioensis*. Type.
Figure 4. *Okanagana rimosa* var. *ohioensis*. Allotype.
Figure 5. *Platypedia tomentosa*. Type.

